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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,151	10/20/2003	Sumeet Sandhu	114367-150286	6395

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EXAMINER	
ADDY, THJUAN KNOWLIN	

ART UNIT	PAPER NUMBER
2614	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/689,151	SANDHU, SUMEET	
	Examiner	Art Unit	
	Thjuan K. Addy	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 February 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11,15-25 and 29-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,15-25 and 29-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed on February 28, 2007 has been entered. Claims 1, 5-7, 10, 11, 15, 19-21, 24, 25, and 29-31 have been amended. Claims 12-14 and 26-28 have been cancelled. No claims have been added. Claims 1-11, 15-25, and 29-31 are now pending in this application, with claims 1, 7, 15, 21, and 29 being independent.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-11, 15-25, and 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walton et al (US Patent Application, Pub. No.: US 2003/0087673 A1), in view of Voltolina et al (US Patent Application, Pub. No.: US 2005/0233760 A1).

3. In regards to claims 1 and 15, Walton discloses a method and article, comprising: operating in a multiple input, multiple output (MIMO) mode (e.g., MIMO mode) by a wireless network device (See Fig. 5 and terminal 106a) of a wireless network (See Fig. 5 and wireless communication system 500), the wireless network including at least one transmitter device (See Fig. 5 and base station (BS) 104) and a plurality of receiver devices (See Fig. 5 and terminals 106a-106n), the wireless network device being one of

the receiver devices; and in the event of a predetermined condition (for example, the predetermined condition may be desired quality of service, maximum latency, average data rate, etc.), operating in a spatial division, multiple access mode (e.g., N-SIMO mode or SDMA) (See pg. 1, paragraph [0009]; pg. 1, paragraph [0012] – [0013]; pg. 2, paragraph [0033]; pg. 4, paragraph [0047]; pg. 10, paragraph [0118]; and pg. 10, paragraph [0122] – [0123]). Walton, however, does not specifically disclose in the event of a predetermined condition, the wireless network device switching from operating in the MIMO mode to operating in a spatial division, multiple access (SDMA) mode. Voltolina, however, does specifically disclose in the event of a predetermined condition (for example, the predetermined condition may be the determination of a predetermined number of users, more or less, within the group of terminals), the wireless network device (See Fig. 1 and user equipment (UE) 50A) switching from operating in the MIMO mode (e.g., point-to-point distribution) to operating in a spatial division, multiple access (SDMA) mode (e.g., point-to-multipoint distribution) (See pg. 3, paragraph [0043]). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to employ this feature within the method, as a way of providing reliable and efficient service to users within a mobile communication network.

4. In regards to claims 2, 16, and 30, Walton discloses a method, article, and apparatus, wherein the predetermined condition includes a latency value exceeding a predetermined value (See pg. 3, paragraph [0041]; pg. 6, paragraph [0079]; and pg. 8, paragraph [0088]).

5. In regards to claims 3, 8, 9, 17, 22, and 23, Walton discloses a method and article, wherein the predetermined condition includes a throughput value being below a predetermined value (See pg. 7, paragraph [0089] – [0091] and pg. 12, paragraph [0141]).

6. In regards to claims 4 and 18, Walton discloses all of claims 4 and 18 limitations, except a method and article, wherein the predetermined condition includes a number of collisions exceeding a predetermined value. However, in claims 2 and 3, Walton does disclose wherein the predetermined condition includes a latency value exceeding a predetermined value and wherein the predetermined condition includes a throughput value being below a predetermined value (See cited paragraphs above for claims 2 and 3). Therefore, it would have been obvious to include another predetermined condition, such as a number of collisions exceeding a predetermined value.

7. In regards to claims 5, 10, 19, and 24, Walton discloses a method and article, wherein the predetermined condition includes a desired higher spectral efficiency (See pg. 7, paragraph [0089] – [0091]).

8. In regards to claims 6 and 20, Walton discloses a method and article, wherein the predetermined condition includes a number of receivers exceeding a predetermined value (See pg. 3, paragraph [0038] and pg. 9, paragraph [0104]).

9. In regards to claims 7 and 21, Walton discloses a method and article, comprising: operating in a spatial division, multiple access (SDMA) mode (e.g., N-SIMO mode or SDMA) by a wireless network device (See Fig. 5 and terminal 106a) of a wireless network (See Fig. 5 and wireless communication system 500), the wireless network

including at least one transmitter device (See Fig. 5 and base station (BS) 104) and a plurality of receiver devices (See Fig. 5 and terminals 106a-106n), the wireless network device being one of the receiver devices; and in the event of a predetermined condition (for example, the predetermined condition may be desired quality of service, maximum latency, average data rate, etc.), operating in a multiple input, multiple output (MIMO) mode (e.g., MIMO mode) (See pg. 10, paragraph [0118] and pg. 10, paragraph [0122] – [0123]). Walton, however, does not specifically disclose in the event of a predetermined condition, the wireless network device switching from operating in the SDMA mode to operating in a multiple input, multiple output (MIMO) mode. Voltolina, however, does specifically disclose in the event of a predetermined condition (for example, the predetermined condition may be the determination of a predetermined number of users, more or less, within the group of terminals), the wireless network device (See Fig. 1 and user equipment (UE) 50A) switching from operating in the SDMA mode (e.g., point-to-multipoint distribution) to operating in a multiple input, multiple output (MIMO) mode (e.g., point-to-point distribution) (See pg. 3, paragraph [0043]). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to employ this feature within the method, as a way of providing reliable and efficient service to users within a mobile communication network.

10. In regards to claims 11 and 25, Walton discloses a method and article, wherein the predetermined condition includes a desired higher quality of service for at least one user (See pg. 3, paragraph [0041] and pg. 7, paragraph [0091]).

11. In regards to claim 29, Walton discloses an apparatus, comprising: a transceiver (i.e., transmit-receive antenna) (See pg. 3, paragraph [0038]) to receive signals from a transmitter device (See Fig. 5 and base station (BS) 104) of a wireless network (See Fig. 5 and wireless communication system 500), the wireless network including the transmitter device and a plurality of receiver devices (See Fig. 5 and terminals 106a-106n), the apparatus being at least a part of one of the receiver devices; at least two or more omnidirectional antennas to couple to said transceiver; and a baseband processor to couple to said transceiver, wherein said baseband processor and said transceiver switch from a multiple input, multiple output (MIMO) mode to a spatial division, multiple access (SMDA) mode under a first condition (for example, the first condition may be desired quality of service, maximum latency, average data rate, etc.), and switch from a spatial division, multiple access mode to a multiple input, multiple output mode under a second condition (for example, the second condition may be a change in the desired quality of service, a change in the maximum latency, a change in the average data rate, etc.) (See pg. 11, paragraph [0134]; pg. 12, paragraph [0140] – [0141]; and pg. 13, paragraph [0150]). Walton, however, does not specifically disclose switching [switch] from a SDMA mode to a MIMO mode under a second condition. Voltolina, however, does specifically disclose switching [switch] from a SDMA mode (e.g., point-to-multipoint distribution) to a MIMO mode (e.g., point-to-point distribution) under a second condition (for a example, the second condition may be the change in the number of users within the group of terminals) (See pg. 3, paragraph [0043]). Therefore, it would have been obvious for one of ordinary skill in the art at the time of the invention to

employ this feature within the method, as a way of providing reliable and efficient service to users within a mobile communication network.

12. In regards to claim 31, Walton discloses an apparatus, wherein the second condition includes at least one of a lower signal-to-noise ratio, a higher bit error rate, a lower spectral efficiency, a desired higher data rate for at least one receiver device, a desired higher quality of service for at least one receiver device, and a lower number of receiver devices than what can be obtained through the MIMO mode (See pg. 15, paragraph [0166] and pg. 15, paragraph [0169]).

Response to Arguments

13. Applicant's arguments with respect to claims 1-11, 15-25, and 29-31 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Walton et al (US 7,184,743) teach a method and apparatus for allocating uplink resources in a multiple-input multiple-output (MIMO) communication system.

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

16. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thjuan K. Addy whose telephone number is (571) 272-7486. The examiner can normally be reached on Mon-Fri 8:30-5:00pm.

18. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar can be reached on (571) 272-7488. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

19. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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